ENGINEERING TECHNOLOGY AND MANAGEMENT FOR AGRICULTURAL SYSTEMS, MS-PSM

for the degree of Master of Science in Engineering Technology and Management for Agricultural Systems, Professional Science Master's Concentration

The Department of Agricultural and Biological Engineering offers a graduate degree program which is at the forefront of the application of engineering principles to solve problems of agricultural production, utilization, environmental control, and biological systems and to improve the quality of life. Students may concentrate study in one of the faculty research interest areas listed below. Supporting course work includes: mathematics; computer science; statistics; engineering mechanics; chemical, civil, electrical, and mechanical engineering; animal science; crop sciences; food science; and other appropriate fields. Opportunity also exists for specializing in:

1. computational science and engineering and
2. energy and sustainability engineering within the department's graduate programs via the Computational Science and Engineering (CSE) Option (http://cse.illinois.edu/education/cse-educational-programs-overview/) and the Energy and Sustainability Engineering (EaSE) Option (http://ease.illinois.edu/)

Admission

Admission requirements for either master's program include completion of an undergraduate program equivalent to the Agricultural and Biological Engineering (ABE) curriculum (in the case of the ABE M.S.) or the Engineering Technology and Management for Agricultural Systems (ETMAS) curriculum (in the case of the ETMAS M.S.) with at least a 3.0 grade point average (A = 4.0) for the last two years of undergraduate course work.

Admission to the Ph.D. program is limited to individuals who have demonstrated exceptional ability through outstanding performance in obtaining a Master of Science degree and/or through a high degree of technical and professional accomplishment. Candidates must also satisfy entrance requirements for the M.S. degree program.

All applicants whose native language is not English must submit a minimum TOEFL (http://www.toefl.org/) score of 88 (iBT), 230 (CBT) or 570 (PBT); or minimum International English Language Testing System (IELTS) (http://www.ielts.org/) academic exam scores of 6.5 overall and 6.0 in all subsections. Applicants may be exempt from the TOEFL if certain criteria (http://grad.illinois.edu/admissions/instructions/04c/) are met. For those taking the TOEFL or IELTS, full admission status (http://grad.illinois.edu/admissions/instructions/04c/) is granted for scores greater than 102 (TOEFL iBT), 253 (TOEFL CBT), 610 (TOEFL PBT), or 6.5 (IELTS). Limited status (http://grad.illinois.edu/admissions/instructions/04c/) is granted for lesser scores and requires enrollment in English as a Second Language (ESL) courses (https://linguistics.illinois.edu/languages/english-second-language/) based on an ESL Placement Test (EPT) taken upon arrival to campus.

Graduate Teaching Experience

Experience in teaching is considered a vital part of the graduate program and is required as part of the academic work of all Ph.D. candidates in this program. For details of expectations, see the department's Graduate Handbook (http://abe.illinois.edu/graduate/handbook/).

Faculty Research Interests

Current research interests of the faculty include off-road equipment engineering (robotics and machinery automation, remote sensing and precision agriculture, machinery management systems, pesticide application technology, engines and biofuels); soil and water resources (hydrology, erosion and sediment transport, water management, wetlands, and water quality); bioenvironmental engineering (building environment and energy conservation, air quality, renewable energy, biomass to bioenergy conversion, structural analysis and facility design, building materials evaluation, environmental control and ergonomic design for plant, animal, and human housing systems and facilities); food and bioprocess engineering (engineering properties of foods, physical properties of biological products, grain drying, grain quality evaluation, dry-grind corn processing, wet and dry milling, modified bioprocesses for improved co-products, fuel and chemicals, fermentation, and transport phenomenon in biological materials); or electronic and electrical systems (biosensors and controls, energy systems, machine vision, near-infrared spectroscopy applications, bionanotechnology, microfabricated devices, bioconjugation techniques, transcriptional control, modeling life support systems, and multiscale biological processes). For more details, visit the department's graduate program website. (http://abe.illinois.edu/graduate/areas/)

Financial Aid

Illinois PSM students may not hold assistantships or other tuition and fee waiver-generating appointments; statutory waivers and tuition scholarships are accepted. For all other students, fellowships, supported by University, College of Agricultural, Consumer and Environmental Sciences, and College of Engineering funds, are available on a competitive basis. A limited number of assistantships, providing both teaching and research experience, are often available on a half-time basis. All applicants, regardless of U.S. citizenship, whose native language is not English and who wish to be considered for teaching assistantships must demonstrate spoken English language proficiency (http://grad.illinois.edu/admissions/taengprof.htm) by achieving a minimum score of 24 on the speaking subsection of the TOEFL iBT or 8 on the speaking subsection of the IELTS. For students who are unable to take the iBT or IELTS, a minimum score of 4CP is required on the EPI test (http://cte.illinois.edu/testing/oral_eng/epi_overview.html), offered on campus. All new teaching assistants are required to participate in the Graduate Academy for College Teaching (http://cte.illinois.edu/programs/ta_train.html) conducted prior to the start of the semester.

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Code	Title	Hours
ETMA 594	(0 hours registration every term while in residence, every fall term for the PSM concentration)	0
One course in statistics from an approved list		3-5
One course in research methods including experimental design in consultation with advisor		3-5
One 500-level elective course chosen in consultation with advisor		3-5
Elective courses – chosen in consultation with advisor (subject to Other Requirements and Conditions below)		15-23
Total Hours		**42**

Other Requirements

Requirement	Description
Other requirements may overlap	
The PSM concentration is required	
A minimum of 12 500-level credit hours applied toward the degree.	
The minimum program GPA is 2.75.	

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Graduate Degree Programs in Agricultural & Biological Engineering

- Agricultural and Biological Engineering, MS (http://catalog.illinois.edu/graduate/engineering/agricultural-biological-engineering-ms/)
- Agricultural and Biological Engineering, PhD (http://catalog.illinois.edu/graduate/engineering/agricultural-biological-engineering-phd/)
- Engineering Technology and Management for Agricultural Systems, MS (http://catalog.illinois.edu/graduate/aces/engineering-technology-management-agricultural-systems-ms/)
- Engineering Technology and Management for Agricultural Systems, MS-PSM (p. 1)
- Technical Systems Management, MS | University of Illinois Urbana-Champaign (http://catalog.illinois.edu/graduate/aces/technical-systems-management-ms/)
- Technical Systems Management, MS - Professional Science Master's | University of Illinois Urbana-Champaign (http://catalog.illinois.edu/graduate/aces/technical-systems-management-ms-professional-science-masters/)
- Bioprocessing & Bioenergy, MS - Professional Science Master's | University of Illinois Urbana-Champaign (http://catalog.illinois.edu/graduate/aces/bioprocessing-bioenergy-ms-professional-science-masters/#degreerequirementstext)

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1. Obtain subject matter expertise
2. Identify problems and develop problem-solving abilities / critical thinking
3. Function effectively on multidisciplinary teams
4. Demonstrate professional and ethical values
5. Communicate effectively in written and oral forms
6. Engage in life-long learning skills
7. Develop leadership and interpersonal skills
8. Analyze and interpret data
9. Understand social and cultural contexts
10. Develop global perspective
11. Carry out independent research with expertise in research design, methods, and analysis

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Department of Agricultural & Biological Engineering

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College of Agricultural, Consumer & Environmental Sciences (ACES)

College of Agricultural, Consumer & Environmental Sciences website (http://catalog.illinois.edu/schools/aces/)

Admissions

Graduate College Admissions & Requirements (https://grad.illinois.edu/admissions/apply/)